

PHENIX WEEKLY PLANNING

TECHNICAL
SUPPORT
NO. 1



6/16/2011
Don Lynch

6/15/2011

Scheduled maintenance access testerday

RPC Back scatter shielding in north tunnel

MuTr decap clamps test in MMN

RPC HV tests

DC repairs

40 ton crane repair completed

Prepare for ESRC reviews (week of June 20-24)

Schedule MuTr lifting fixture re-certification test

Dummy MuTr load received from CS, assembly in progress

RPC1 Installation components design finished parts on order at CS

Continuing mechanical, electrical and gas system support for Run 11

Continue planning for shutdown 2011

Future upgrades support

VTX/FVTX planning meeting (tomorrow)

Next Week

No Scheduled Maintenance Access for remainder of run 11. Possible short access opportunities.

PHENIX shutdown major projects ESRC safety reviews (week of June 20 - 24)

Prepare work permits and procedures for shutdown

MuTr lifting fixture re-certification test

Continuing mechanical, electrical and gas system support for Run 11

Continue planning for shutdown 2011

Future upgrades support

Planning For the 2011 Shutdown

TECHNICAL SUPPORT ZONE

Prep for shutdown

2/1-6/30/2011

- Define tasks and goals
- Analysis and design of fixtures, tools and procedures
- Fabricate/procure tools and fixtures
- Tests, mockups, prototypes
- Receive, fabricate, modify, finish installables (bigwheels, tubing, etc.)
- MuTr, RPC1 and VTX/FVTX installation review (combined)
- Assembly and QA tests

~6/15/2011

AH Crane temporary reconfiguration (crane out of service during reconfig)

4/15-6/3/2011

End of Run Party (Noon)

6/24/2011

Run 11 Ends

6/29/2010

Shutdown Standard Tasks

7/1-7/21/2010

- Open wall, disassemble wall, Remove MuID Collars,
- Move EC to AH, etc.

PC1 repairs - Anders O.

7/1-7/10/2010

IR Crane repairs and upgrade

7/21-7/28

Disassemble VTX services

7/11-7/22

Remove VTX and transport to Chemistry Lab

7/25/2011

BBC North maintenance

7/22-7/29/2011

MuTr North Station 1 work

- Install access (Sta. 1 work platforms & CM west side hanging platform)
- Remove 1 section of bridge (1 week) (CAD Techs)
- Disconnect Cables, hoses etc, ID/label all (1 week)
- Remove FEE plates and chambers (1 week)
- Station 2 Maintenance/upgrade through access opened by station 1 removal (3 weeks concurrent with next task)
- Clean/install new parts and upgrades (MuTr (3 weeks, concurrent At RPC Factory)
- Re-install chambers and FEE plates (1 week)
- Re-cable, re-hose and test (3 weeks)

7/25-7/29/2011

8/1-8/5/2011

8/8-8/12/2011

8/15-8/19/2011

8/22/-9/9/2011

8/22/-9/9/2011

9/12-9/16/2011

9/19-10/7/2011

6/15/2011

Planning For the 2011 Shutdown (cont'd)

TECHNICAL SUPPORT ZONE

- MuTr North& South Station 2 & 3 Re-cap clamps (No internal work platforms to upper octants) (Need CAD Techs to remove MMS east vertical lampshade) 7/25-10/31/2011
- VTX maintenance/upgrade and integration of FVTX onto VTX support structure
 - Build 2 FVTX racks 7/1-9/15/2011
 - Disassemble VTX 7/11-7/25/2011
 - repair/upgrade/test/reassemble/resurvey VTX 7/25-9/30/2011
 - Assemble FVTX, presurvey Present-10/3/2011
 - Integrate FVTX into VTX, final internal survey 10/3-10/14/2011
 - Install VTX/FTX, Re-connect VTX services, Install FVTX services, survey and QA tests 10/17-10/28/2011
 - VTX/FVTX Commissioning 10/31-11/30/2011
- RPC1 upgrades 7/25-10/28/2011
 - Pre-survey RPC1's at factory (2 weeks, 1 each for n & s) 7/25-8/12/2011
 - Build 1 new rack, upgrade existing RPC1 prototype rack 7/25-8/12/2011
 - Install north RPC1 (including north rack) (3 weeks) 8/15-9/2/2011
- Move Station 1 work platforms to south station 1 10/10-10/14/2011
 - Install south RPC1 (including south rack) (3 weeks) 10/17-11/4/2011
- Upgrade AH crane 8/15-9/15/2011
- DC/PC1 East troubleshooting (DC moved forward on rail for access) 10/15-11/15/2011
- Install VTX&FVTX (including installation of 2 racks on bridge) (2 weeks) 9/26-11/7/2011
- Undefined detector subsystem maintenance and repairs 7/25-11/7/2011
- Prep for EC roll in, reinstall MMS lampshade 11/3-11/7/2011
- Roll in EC 11/10/2011
- Prep IR for run 11/10-11/17/2010
- VTX, FVTX and RPC1 Services and commissioning (including 4 new racks) 9/16-11/30/2011
- Pink/Blue/White sheets 11/17-11/30/2011
- Run 12 cooldown 12/1/2011

6/15/2011

Electronics Group 2011 Shutdown Tasks

TECHNICAL SUPPORT NOTES

- CMT4 and CMT5 FVTX rack design and assembly for installation on the bridge. *Design in progress.*
- FVTX Bias cable assemblies.
 48 eight pair #22AWG. 1680 ft total.
 384 RG-174 cables terminated with CPC and MMCX R/A conns. 1500 ft total.
All parts are on order. Drawing finished and out for bid. .
- Purchase and install FVTX LV cables.
 Wedges: 96 eight pair #22AWG terminated in DF11 conns. 3400 ft total.
 ROCs: 24 twelve pair #16AWG terminated in TYCO 2-106527-4 conns. 900ft total.
Cable is on order.
- All FVTX fiberoptics specify, purchase and install.
MTP trunk order entered. Slow Controls fiber and patch bay order entered .
- FVTX LV output mapper boards. *Eric Mannel is designing and we will assemble.*
- PbSc terminator board production. *Part kit has been picked up. Terminators expected by 6/22.*
MuTr capacitors are here
- West carriage ADAM system performance upgrade.
Purchased a couple of Ethernet ADAMs for testing. Need to purchase a MODBUS server.
- Complete the GL1 6X1 Multiplexer assemblies and test. *Layout stage begun .*
- LeCroy HV control retrofit testing. *Waiting for documentation from Debrecen Institute.*
- Design/Install FVTX Interlock system.
Paul with some input from me and John. Also we may try to repair the bad TC connections.

Tools/Fixtures Needed for Shutdown 2011

TECHNICAL
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NOI

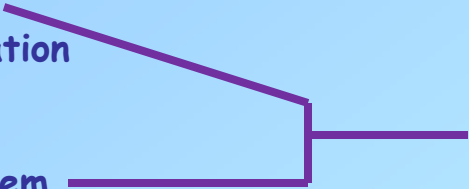
- All tools and fixtures are done or on order
- Any additional requirements that arise will be handled as necessary

Parts Needed for Shutdown 2011

TECHNICAL
SUPPORT
NO--

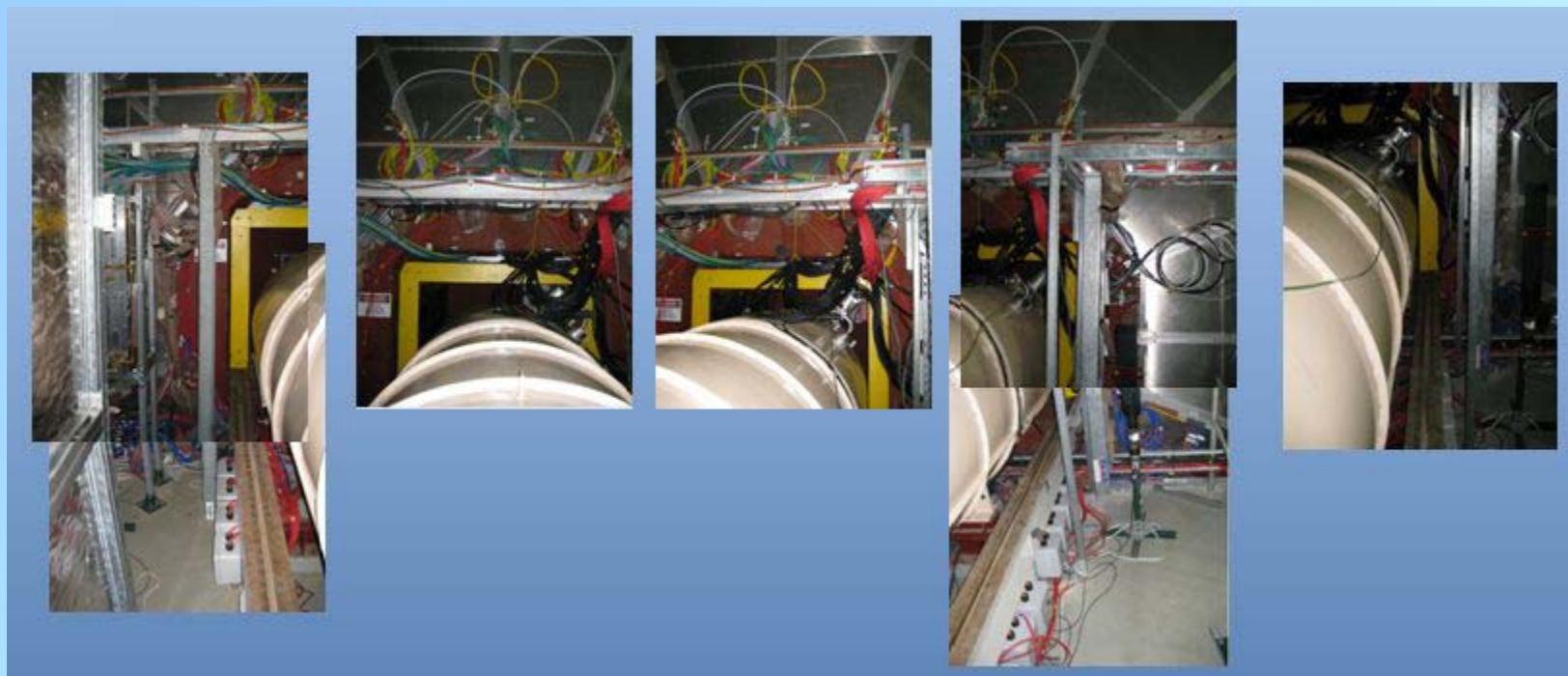
- All identified parts are done or on order
- Any additional requirements that arise will be handled as necessary

Procedures for Shutdown 2011

- Existing PHENIX General Purpose Recurring Task procedures
 - VTX Removal
 - FVTX/VTX installation
 - VTX Survey
 - FVTX Survey
 - FVTX Cooling System
 - RPC1 Installation/QA testing/Survey
 - MuTr Maintenance & Upgrade (stations 1 2 & 3)
 - MuTrigger Maintenance and Upgrade
- Procedures will be part of 1 WP for VTX and FVTX
- 

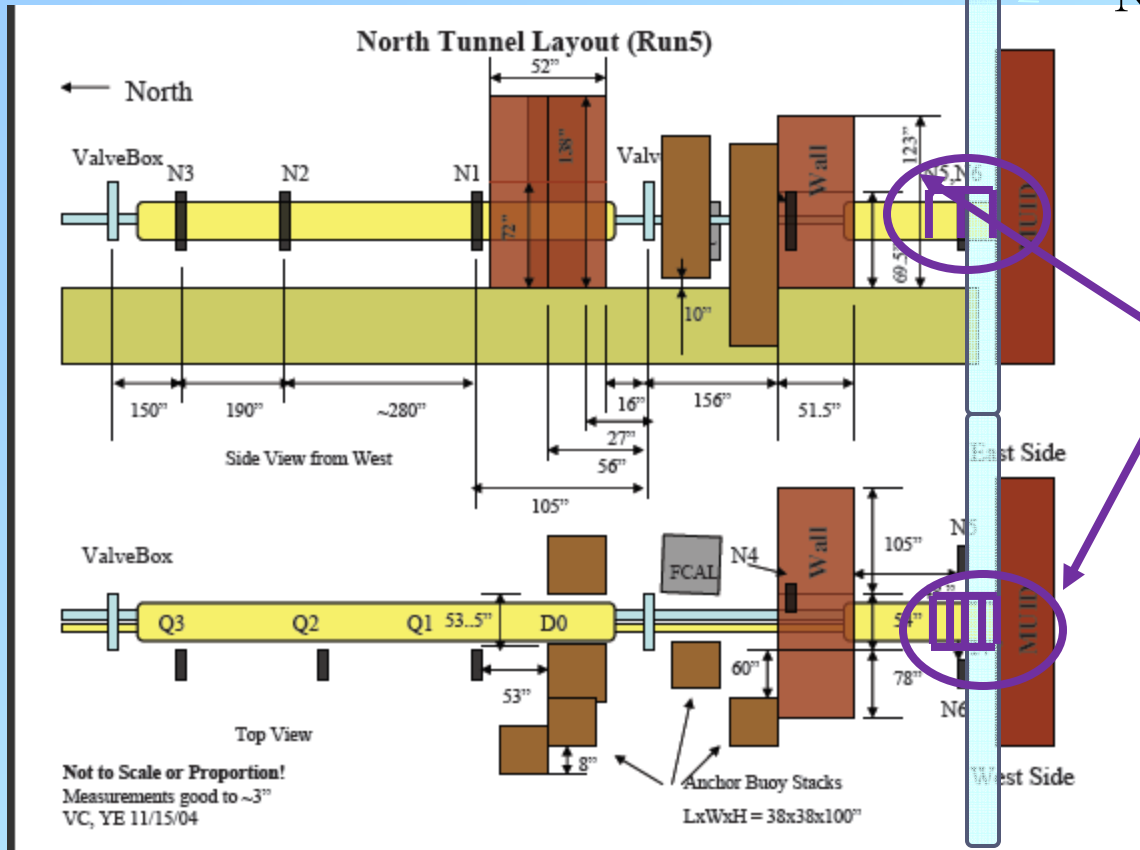
Work Permits for Shutdown 2011

- Start of Shutdown
- VTX Removal/FVTX/VTX Installation
- MuTr Maintenance and Upgrade (Separate WP's for MMN and MMS access)
- RPC1 Installation
- PC1
- End of Shutdown



RPC North Current configuration

RPC3
North



Unistrut Frame mounted on rails, attached to rails at one end to square shield at the other end (pre-existing tapped holes). Approx. 8-" long. Led blankets laid on top.



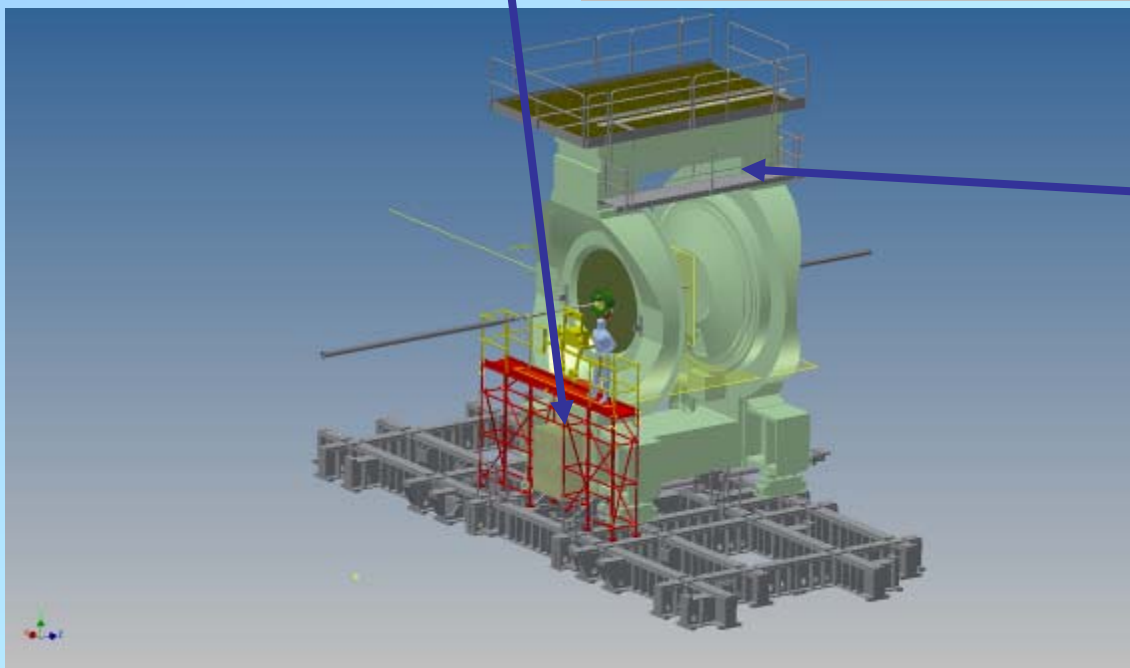
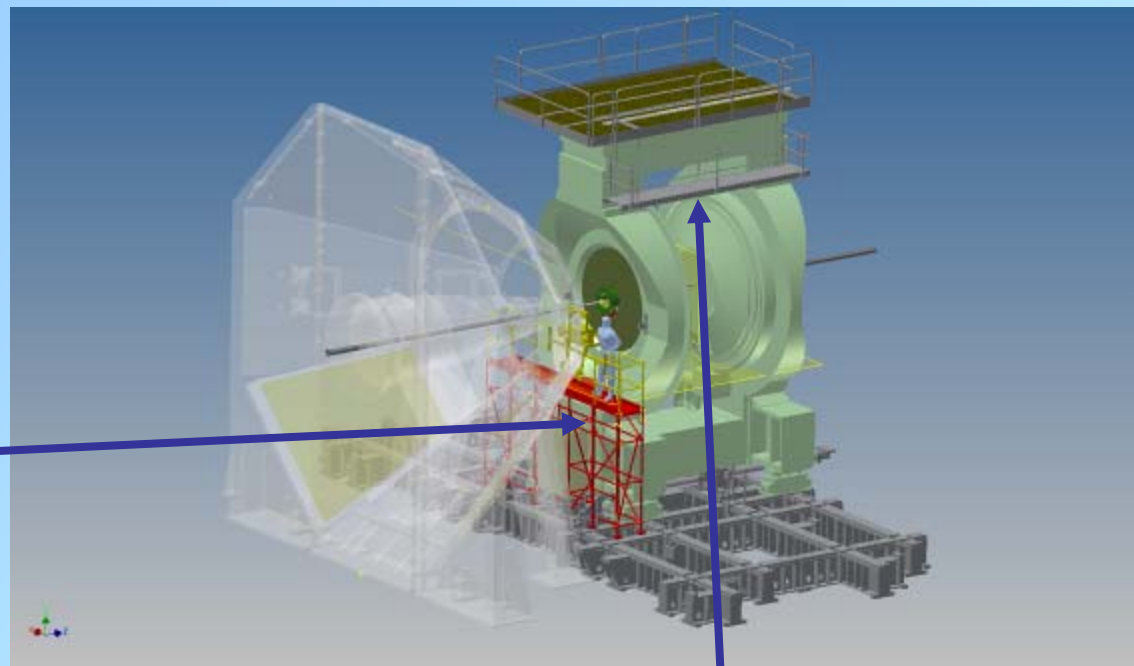
North Station-1 and -2 Re-capacitation & Termination

Reduces cross-talk/big pulses by factor of ~ 3

- documentation & disassembly
- install north station-1 capacitors (gaps 2,3) & terminators
- install terminators on upstream parts of north station-2 (concurrent with above)
- reinstall station-1 chambers and FEE
- re-cable, get working, & extensive testing (with HV/gas)

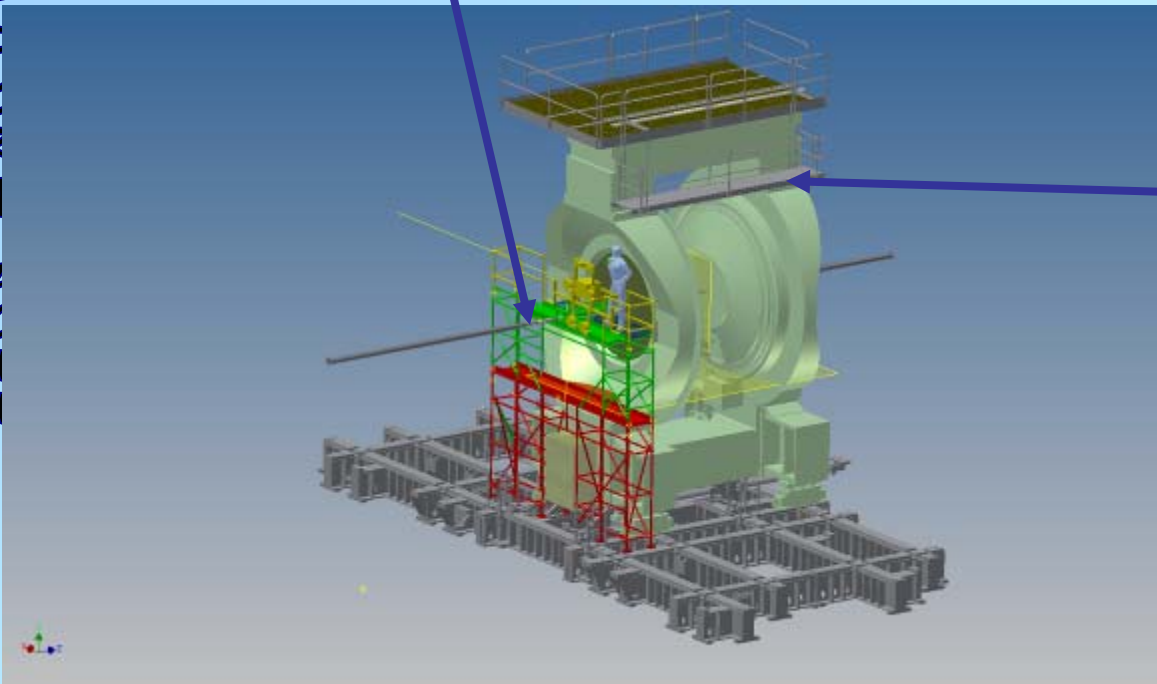
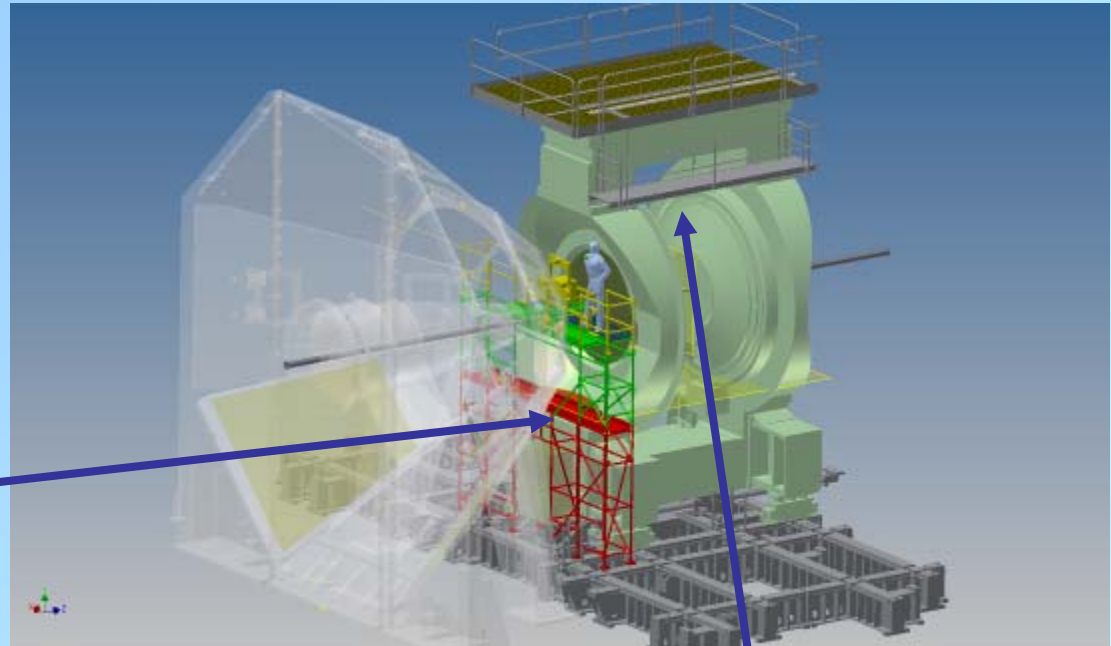


Station 1 platform configured for lower level access shown with North Muon Magnet in phantom for reference and invisible for clarity.



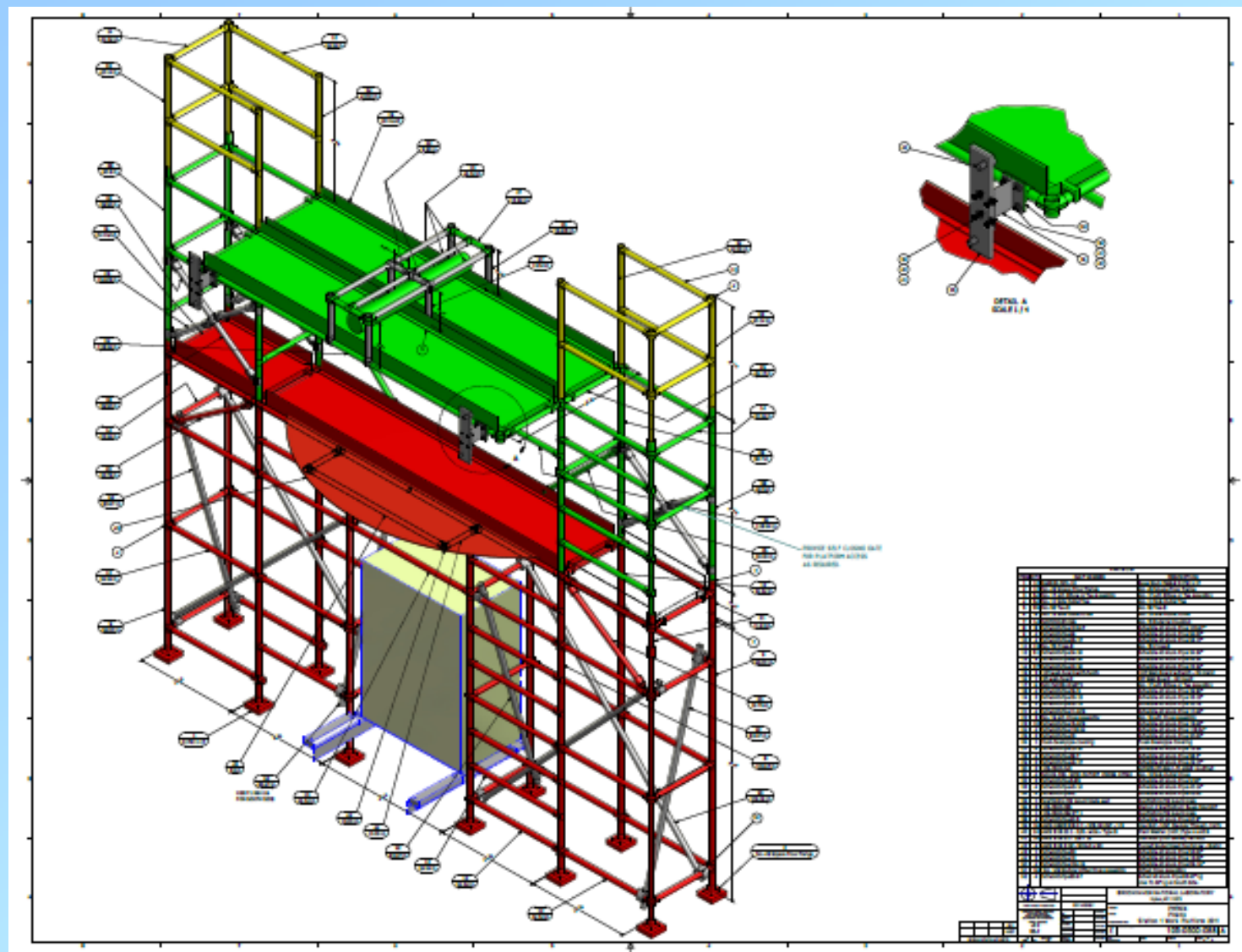
Central Magnet suspended work platform also shown in both models.

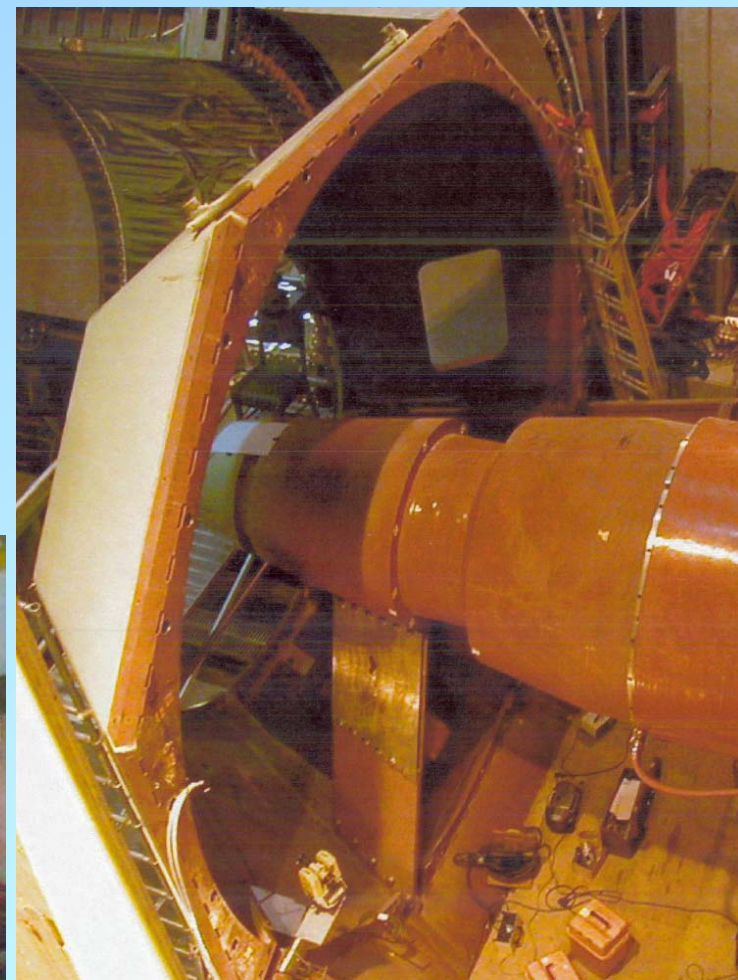
Station 1 platform configured for upper level access shown with North Muon Magnet in phantom for reference and invisible for clarity.



Central Magnet suspended work platform also shown in both models.







Station 2 access (MMS shown
MMN is similar)



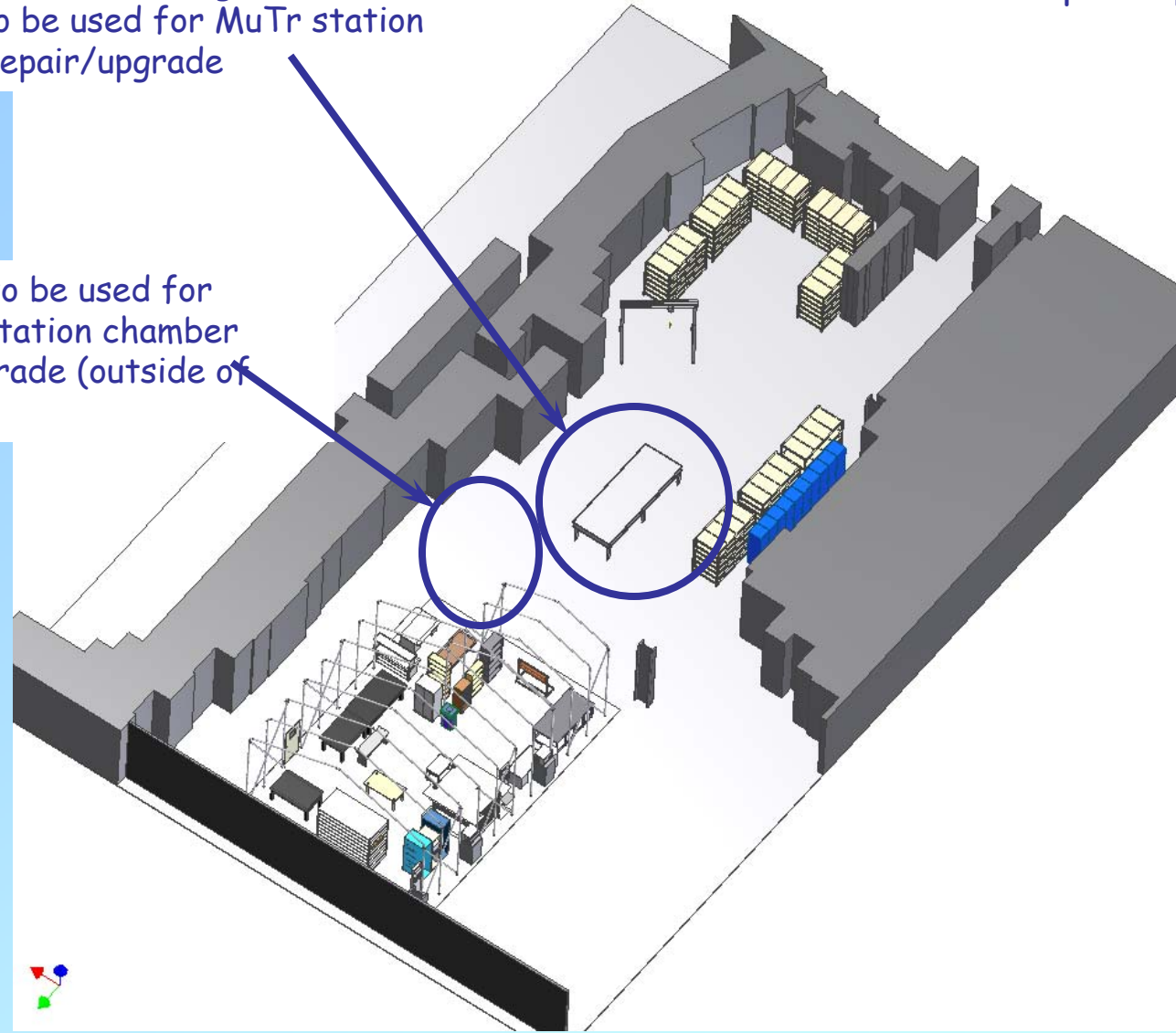
MuTr station 1 lifting fixture
Re-certification analyses
submitted to CAD

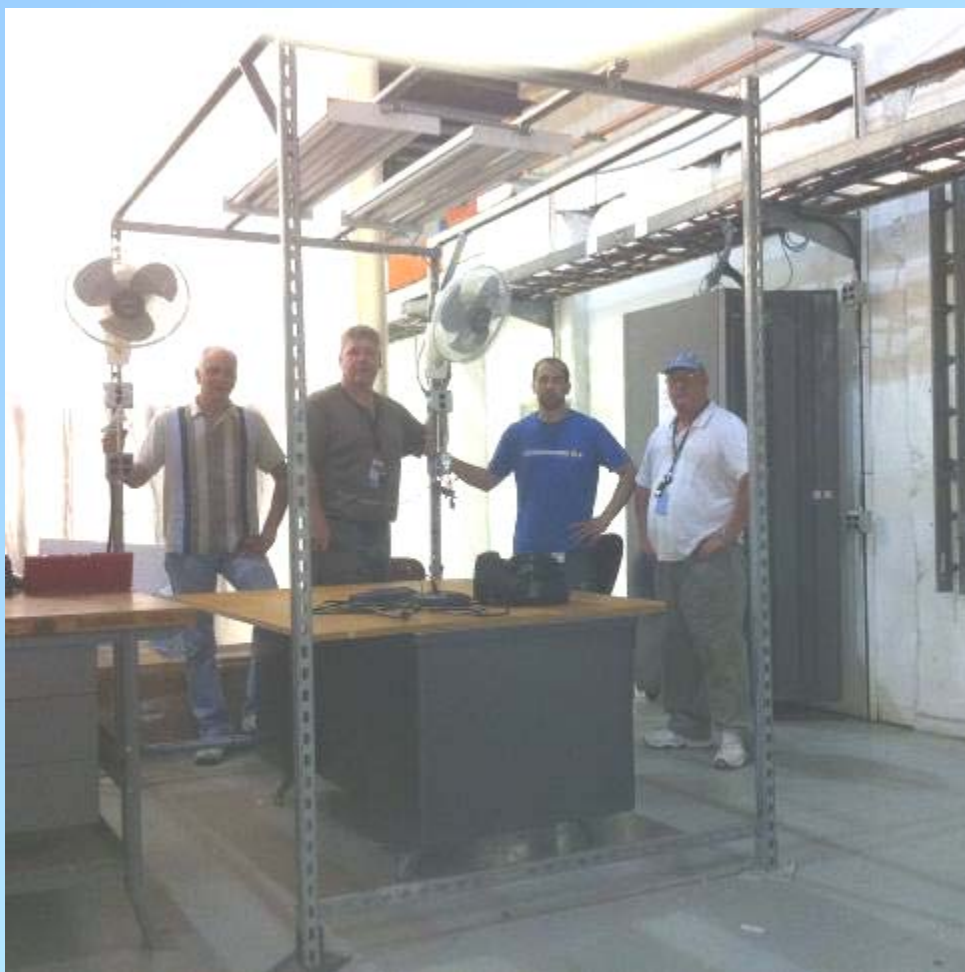


This area (previously occupied by burn-in test stand and enclosing tent, now just tent) to be used for MuTr station 1 chamber repair/upgrade

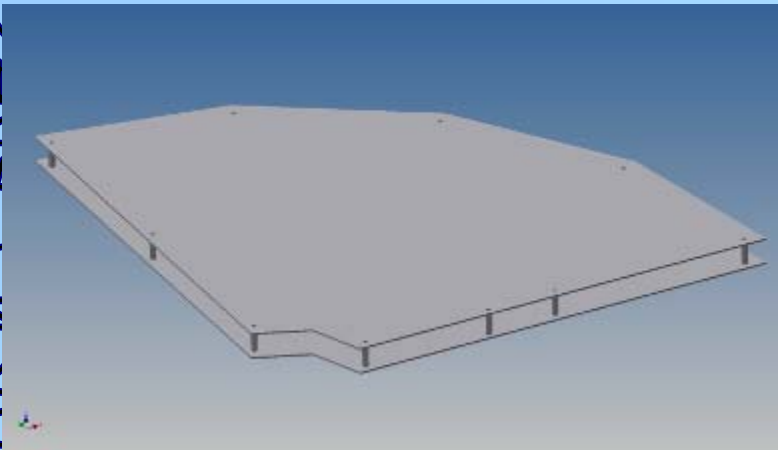
This area to be used for soldering station chamber repair/upgrade (outside of tents)

RPC Factory site to be utilized by both RPC1 fabrication/testing and MuTr station 1 chamber repair/upgrade





Lights and fans for students soldering workstation outside of RPC Tent



Dummy MuTr Station 1 Octant. Will be used to re-qualify vacuum lifting fixture and to practice using vacuum lifting fixture prior to removing station 1 north octants.

AH and IR Crane Corrective Actions



IR Crane 1 ton replacement parts received. Paul and Mike R. planning for upgrade work, test complete

AH Crane:

40 ton Crane back in service today

Expect 10 ton crane to be back in service ASAP, ??



6/15/2011

VTX Repairs/Upgrades This Summer

At RBRC VTX Lab in Chemistry building (need to improve space utilization)

- Fix GND and VDD connections on Spiro boards permanently in lieu of ground cables and wedges temporarily alleviating the problem during run 11 (disassembly, design, vendor, test, reassembly)
- Fix the Hirose connector clamp problem permanently, clamps made for run 11 fix are too big to coexist with FVTX
- Fix bad LDTB's (disassemble, repair/replace, test, reassemble test)
- Replace bad ladder (??)
- Replace 1 or 2 low quality pixel ladders
- New dark box to test strip-pixel repairs or disassemble barrels and test in existing dark box
- Test all repairs/upgrades (stress/cycle test and final test)
- Redo survey
- Integrate with FVTX

At 1008

- Permanent solution for thermocouple connector problems
- Permanent solution for flowmeter problems

VTX group time estimate: 2.5 months before ready to integrate FVTX



VTX Assemblies
2 half detectors,
4 barrels per
detector

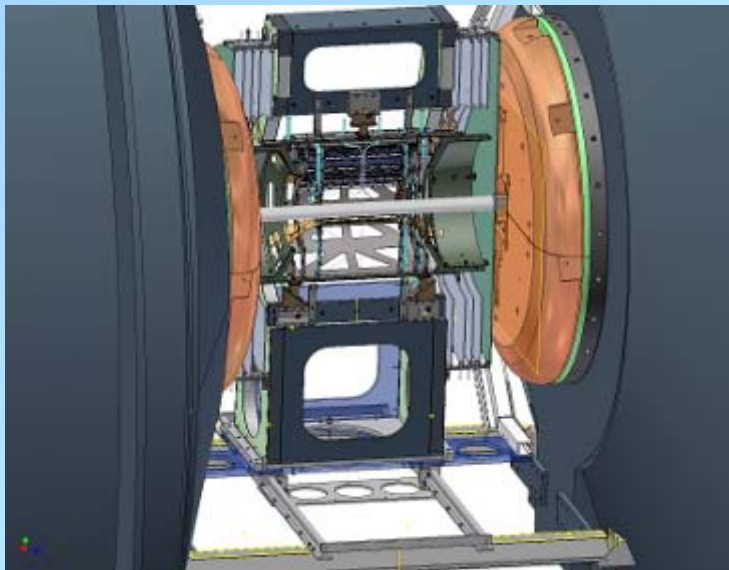
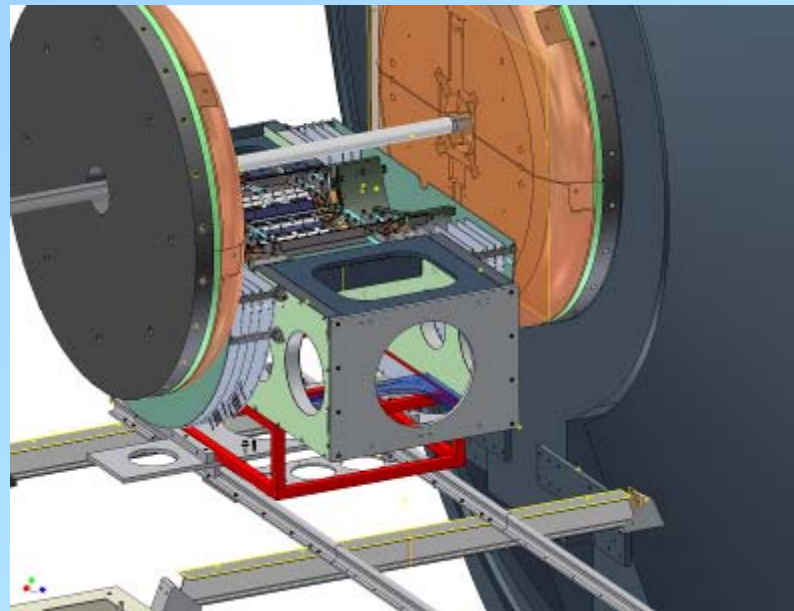


6/15/2011



VTX/FVTX Installation Plan

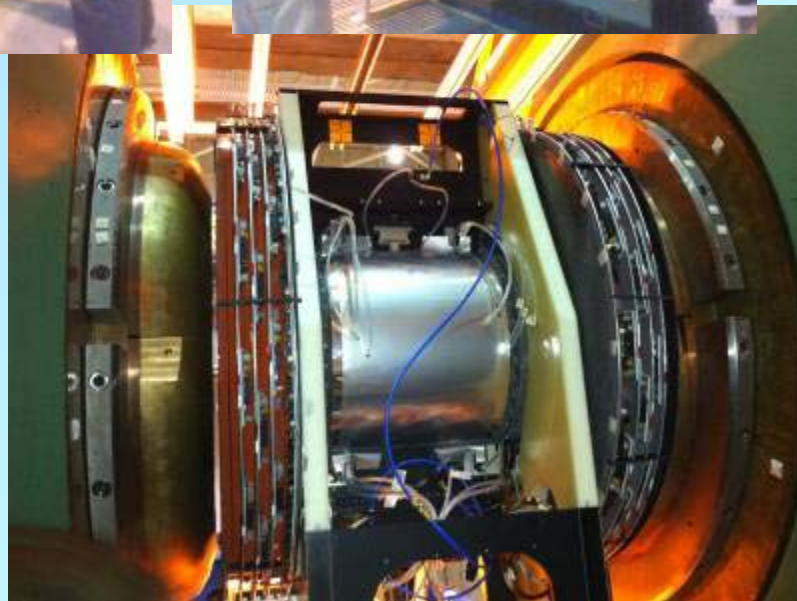
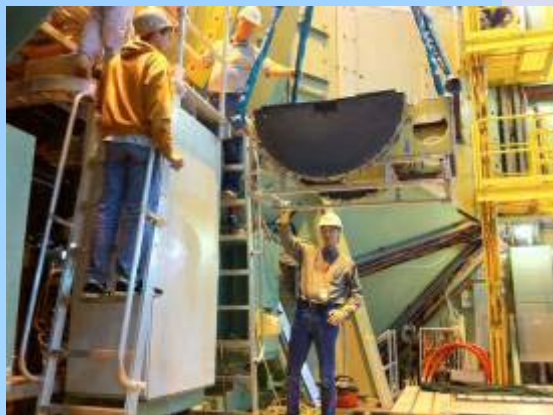
(Same as last year)



West $\frac{1}{2}$ of VTX lifted by crane with slings to extended rail and slid under BP to the west rail extension, then rotated with slings and crane to upright position and placed on west side in approximate final position. East side then lifted with slings and place on east extended rails. Final alignment and alignment stops added with survey group.

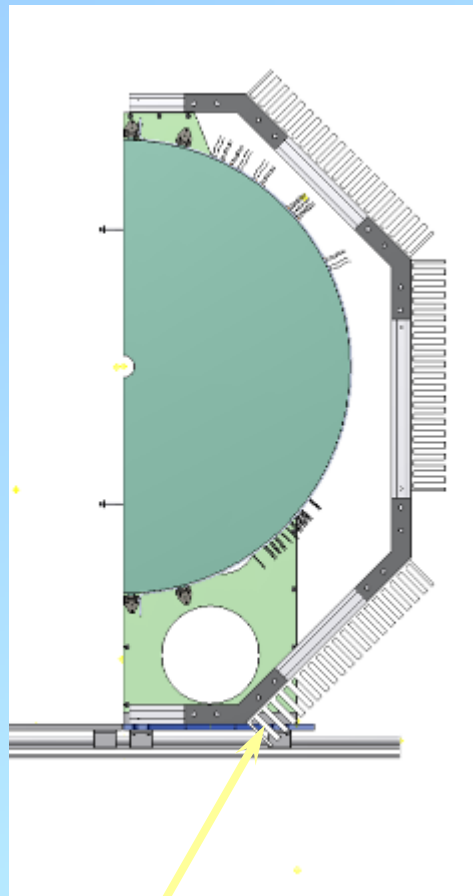
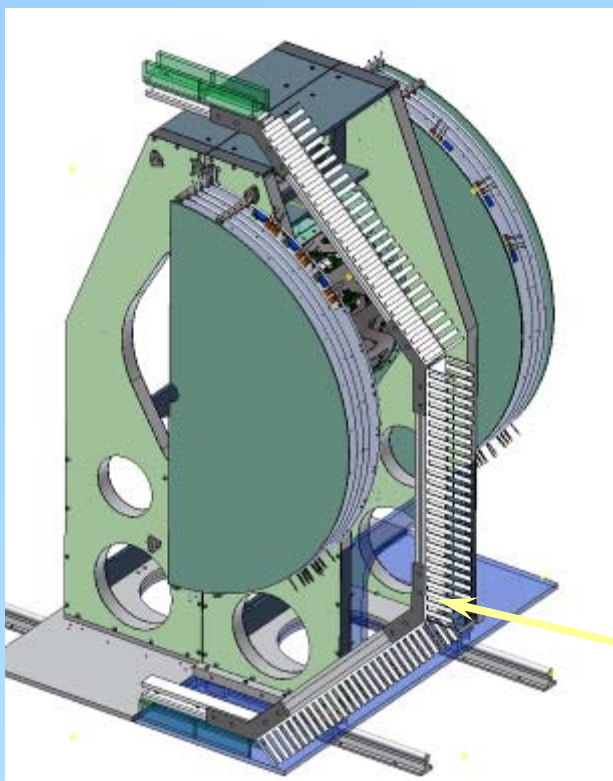
VTX Installation 2010
2011 removal and Re-
installation with FVTX
will be similar

TECHNICAL SUPPORT



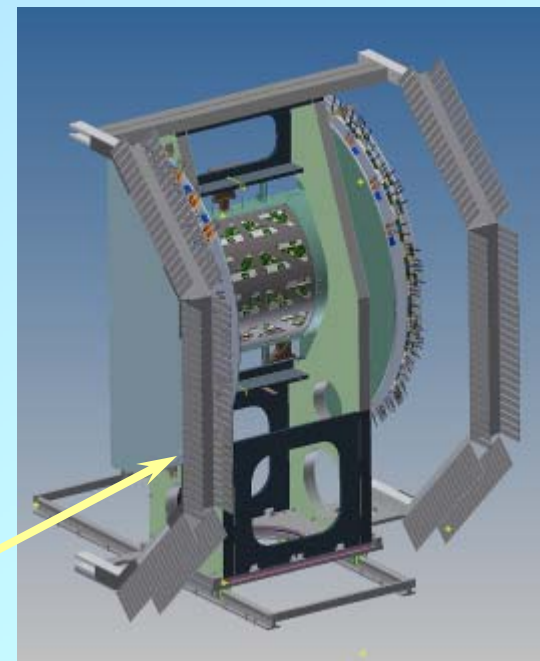
6/15/2011

VTX cable tray concept



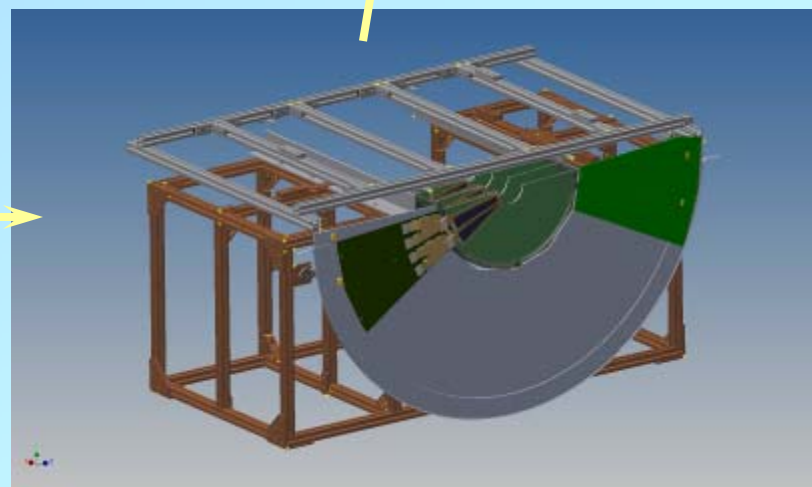
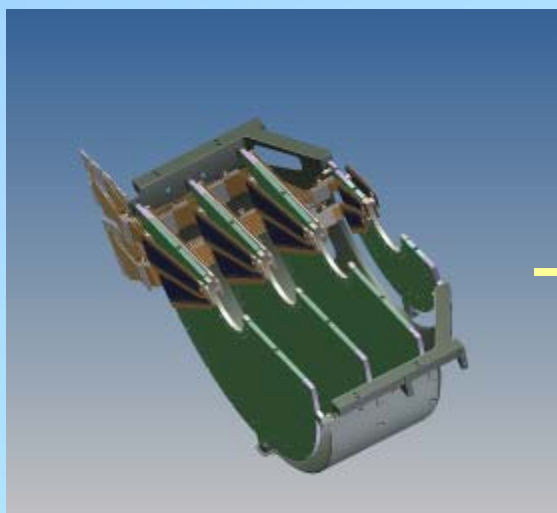
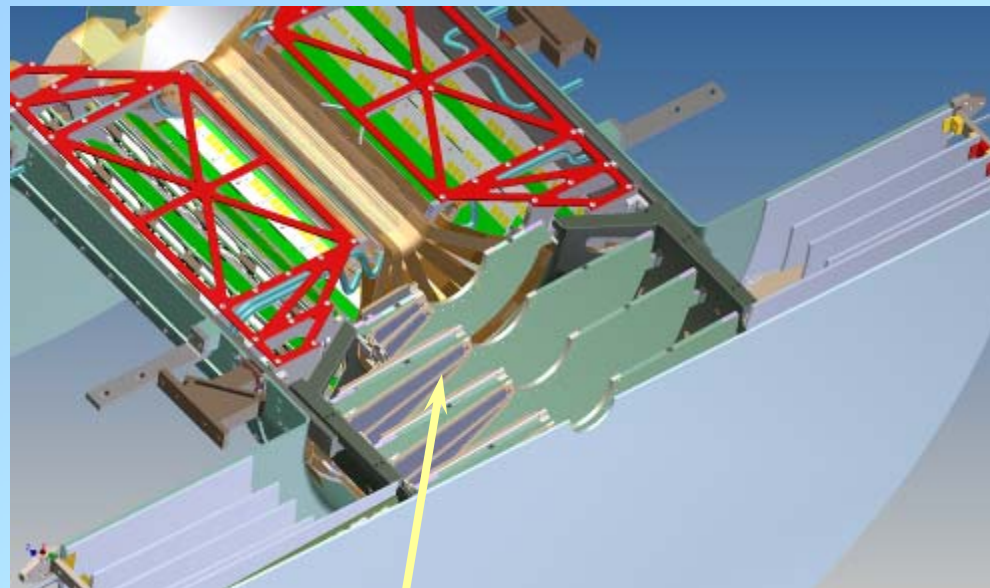
2010
(3" wide)

2011
(6" wide)



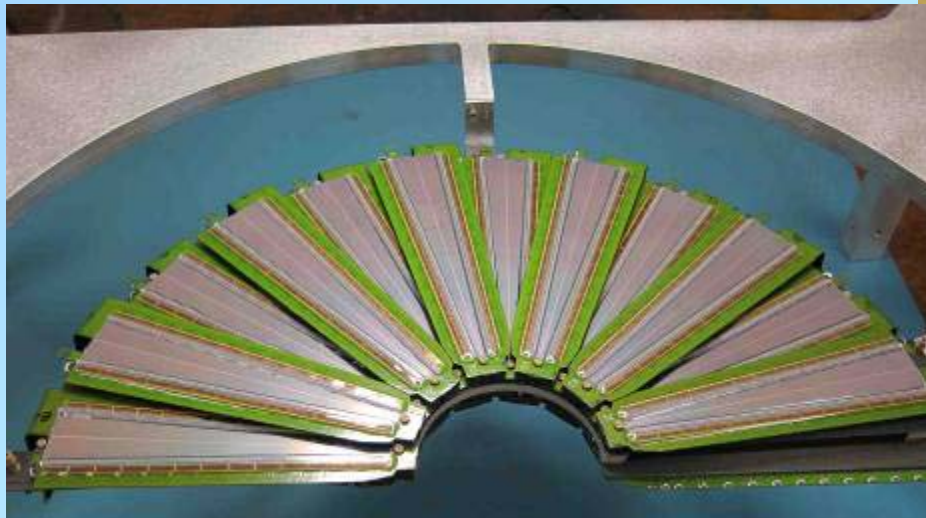
FVTX Assembly and integration into VTX

TECHNICAL SUPPORT



FVTX /VTX Assembly & Integration

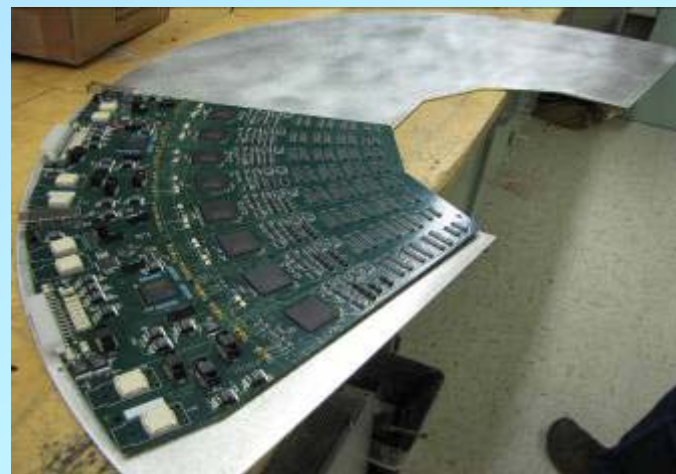
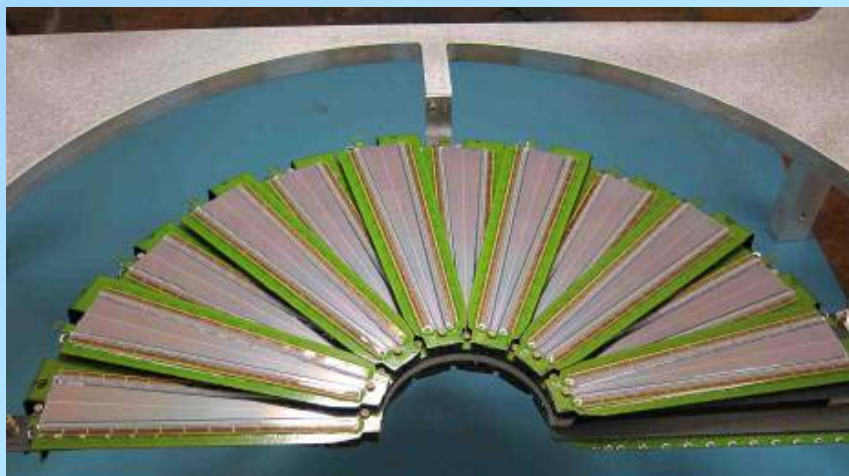
TECHNICAL SUPPORT



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FVTX /VTX Assembly & Integration

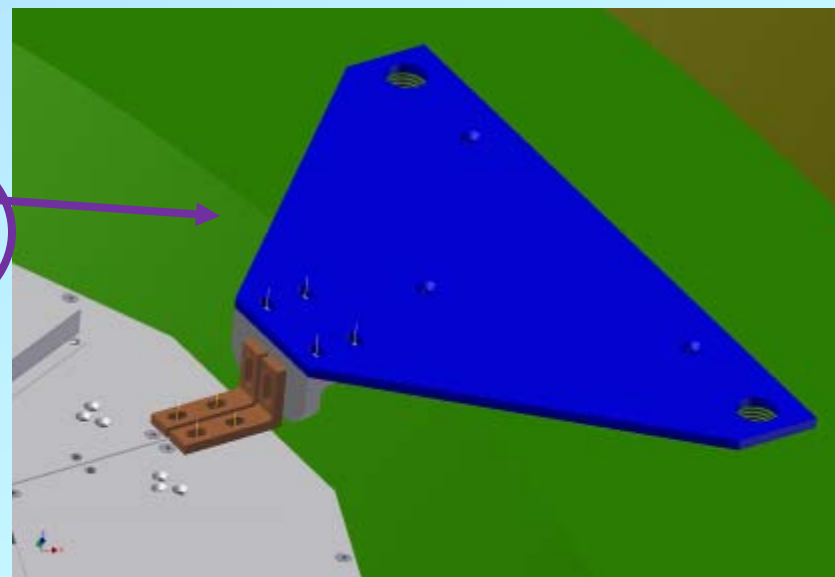
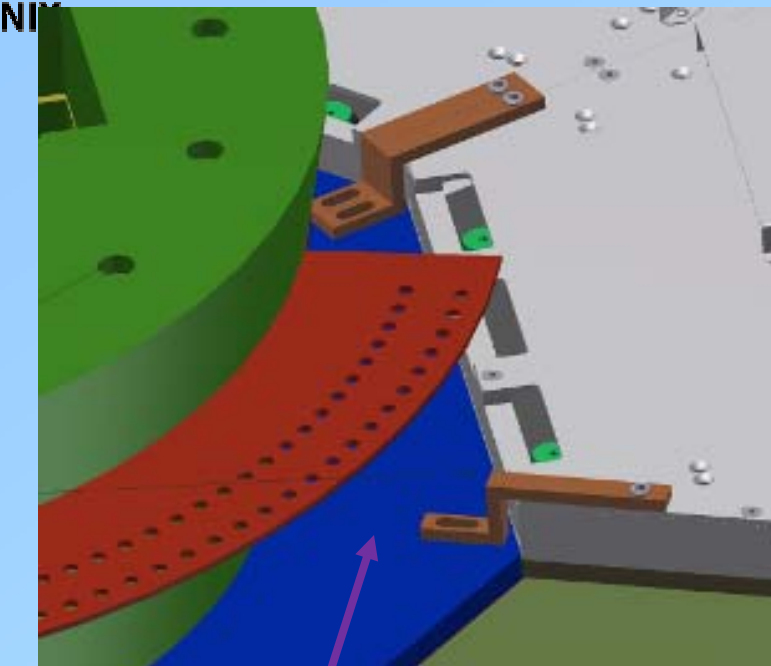
TECHNICAL SUPPORT



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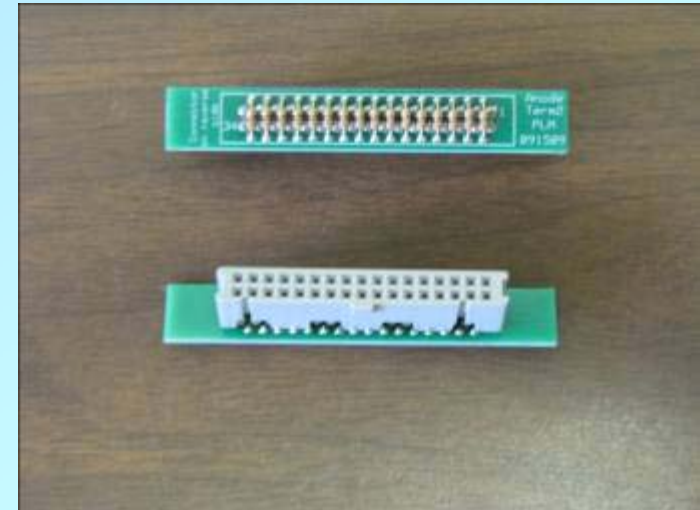
RPC1 Mounting Concept

Octants are individually mounted then tied together and supported at the outer octant boundaries by brackets mounted on existing tapped holes, and on inner edges by rings which wedge against the flower pot lead liner. Tapped holes in 8 places on each octant are used both to mount the absorber section and to attach the mounting brackets.



MuTr Modifications

- Type 1 and type 2 terminators to be installed.
- HV capacitors to be installed.



Station-3 Clamp Installation

TECHNICAL SUPPORT



- Anode card Inspection with mirror : < 5min./clamp.
- Anode clean up if necessary : < 15 min./clamp
- Clamp mount : ~ 5min./clamp
- Voltage readout : 5min./clamp
- HV test : 10min.
- Total : 25 ~ 40 min./clamp

MuTr Station 2/3 Recapacitation clamps

Installed Clamps

Octant 7

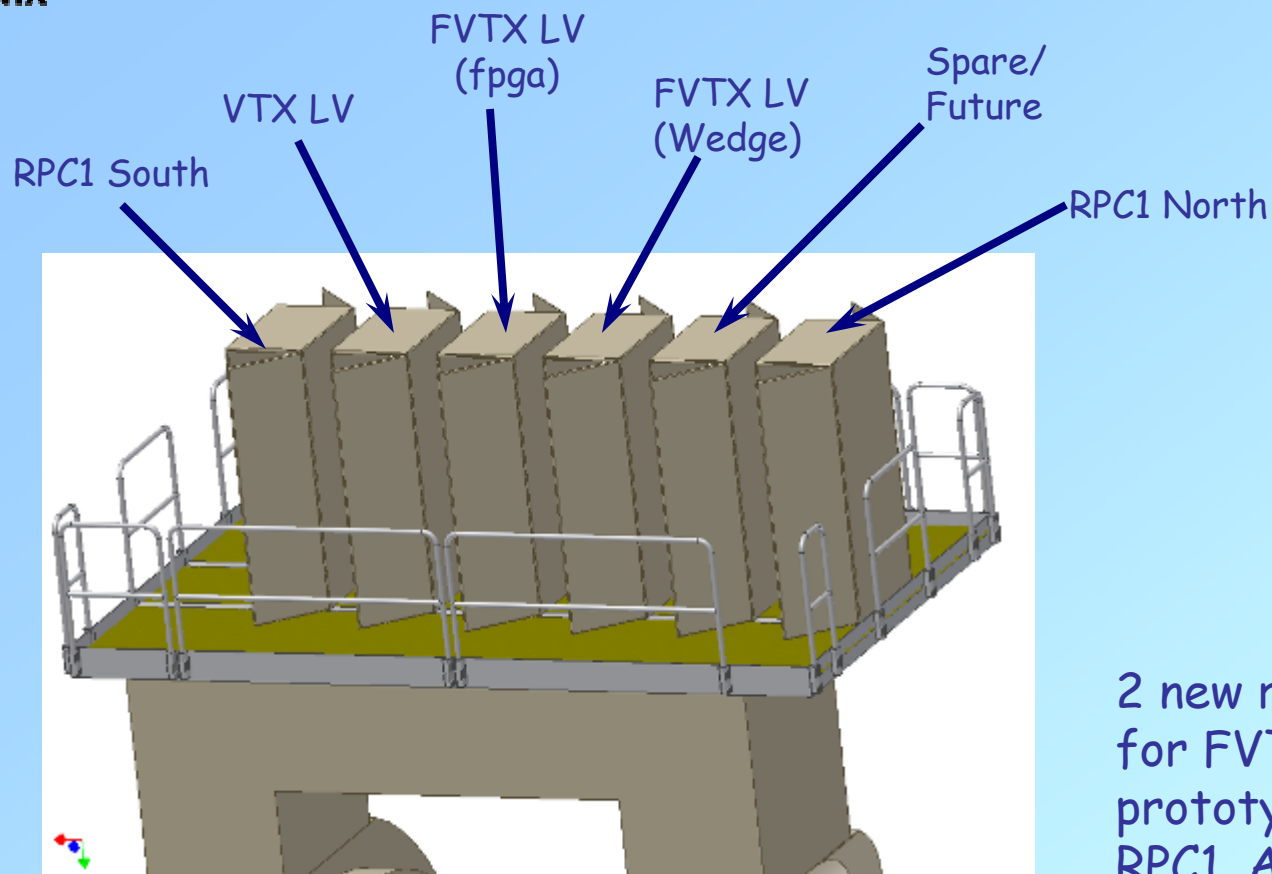
Octant 8



2010 Building Maintenance Issues

- Roof leaks in utility bathroom at northwest corner behind tech offices, over door between rack room and assembly hall, over door between control room and elect. ass'y room, southeast corner of IR and laser room.
- General maintenance for Trailer Offices (in progress)
-Repair replace floor tiling as needed
- Flooding in AH/ Driveway heaving

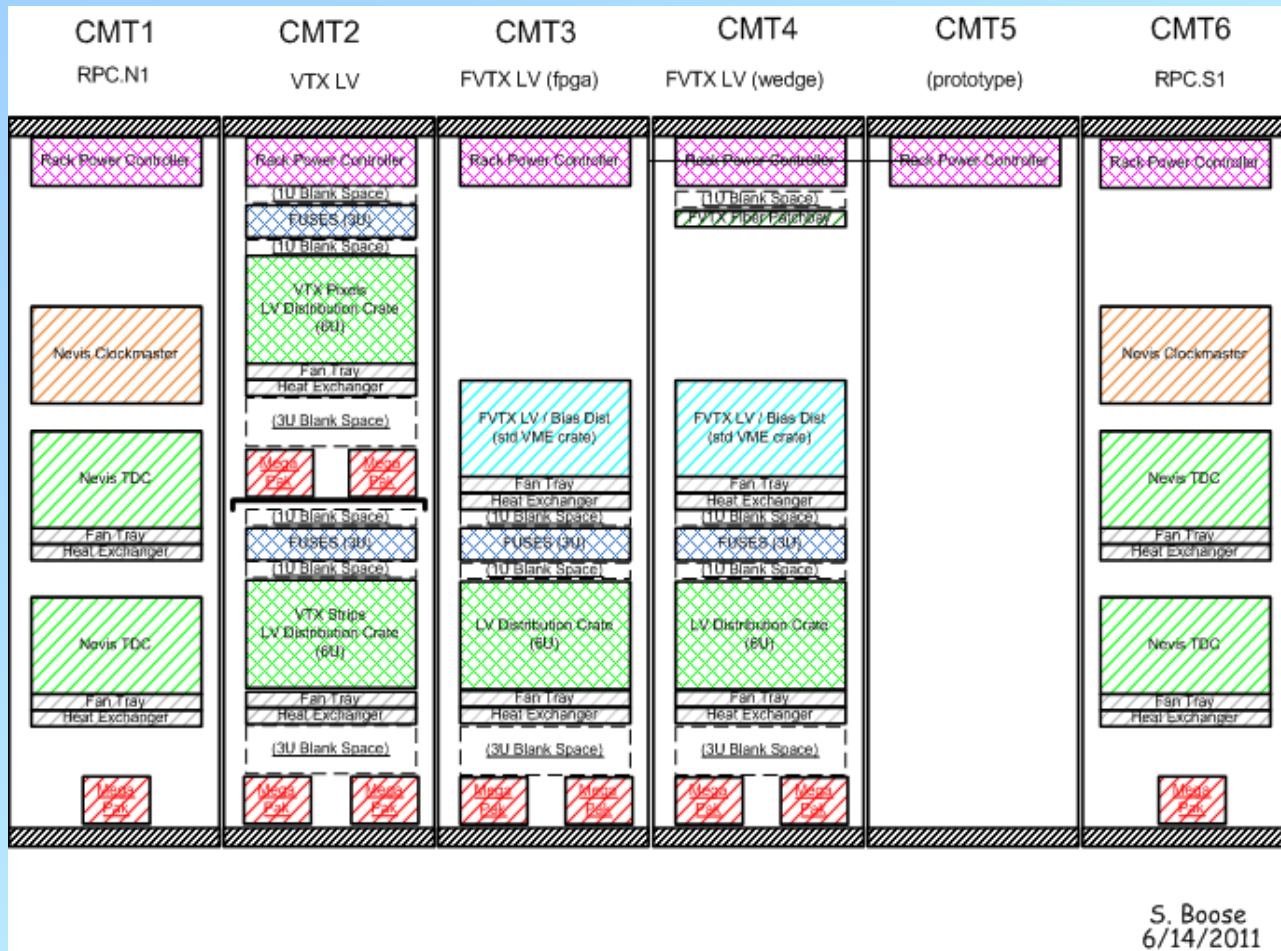




2 new racks to be added for FVTX, 1 new and prototype upgraded for RPC1. All racks will be equipped with standard PHENIX heat, smoke and water leak detection.

PHENIX Electronics 2011 Shutdown Installation

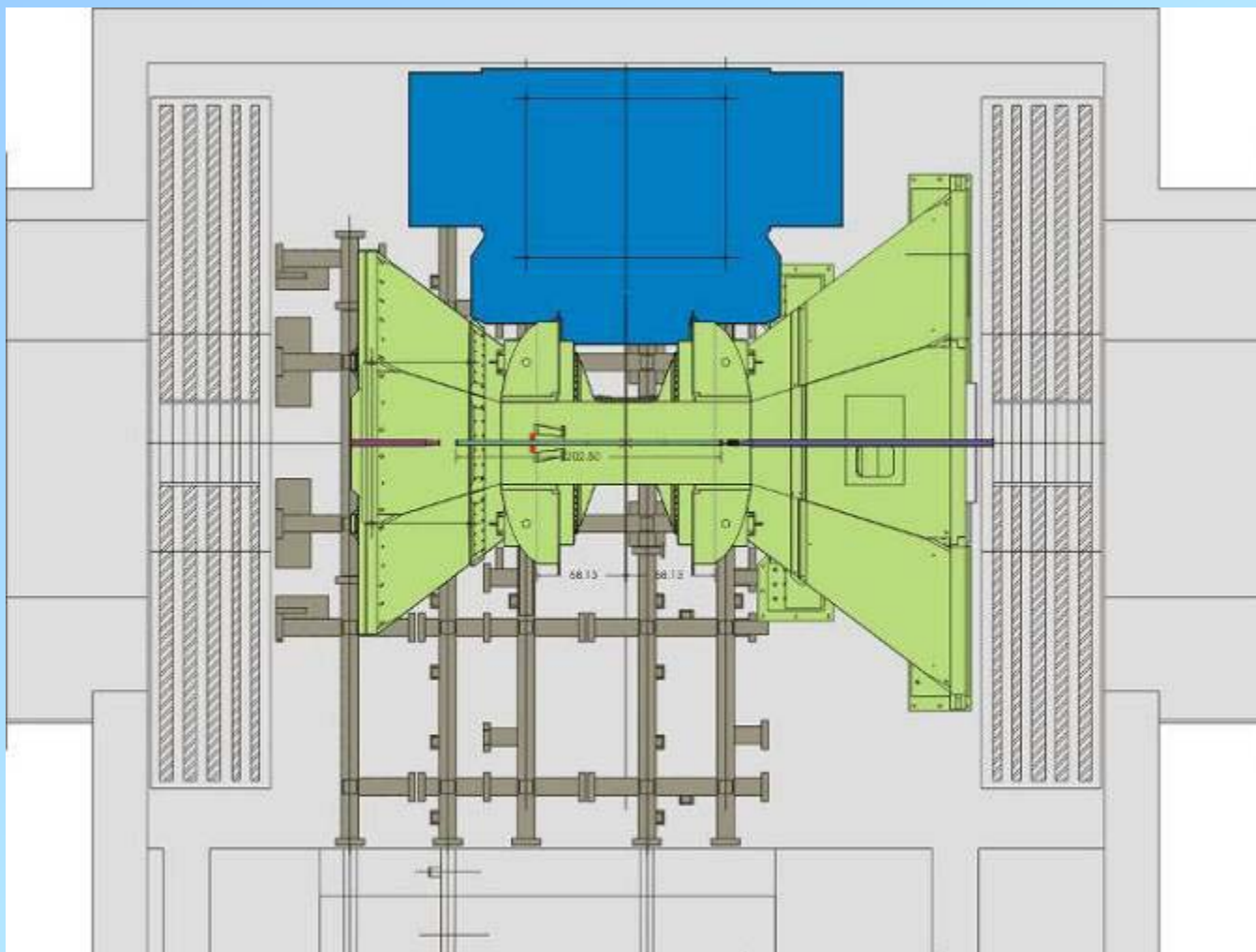
TECHNICAL SUPPORT



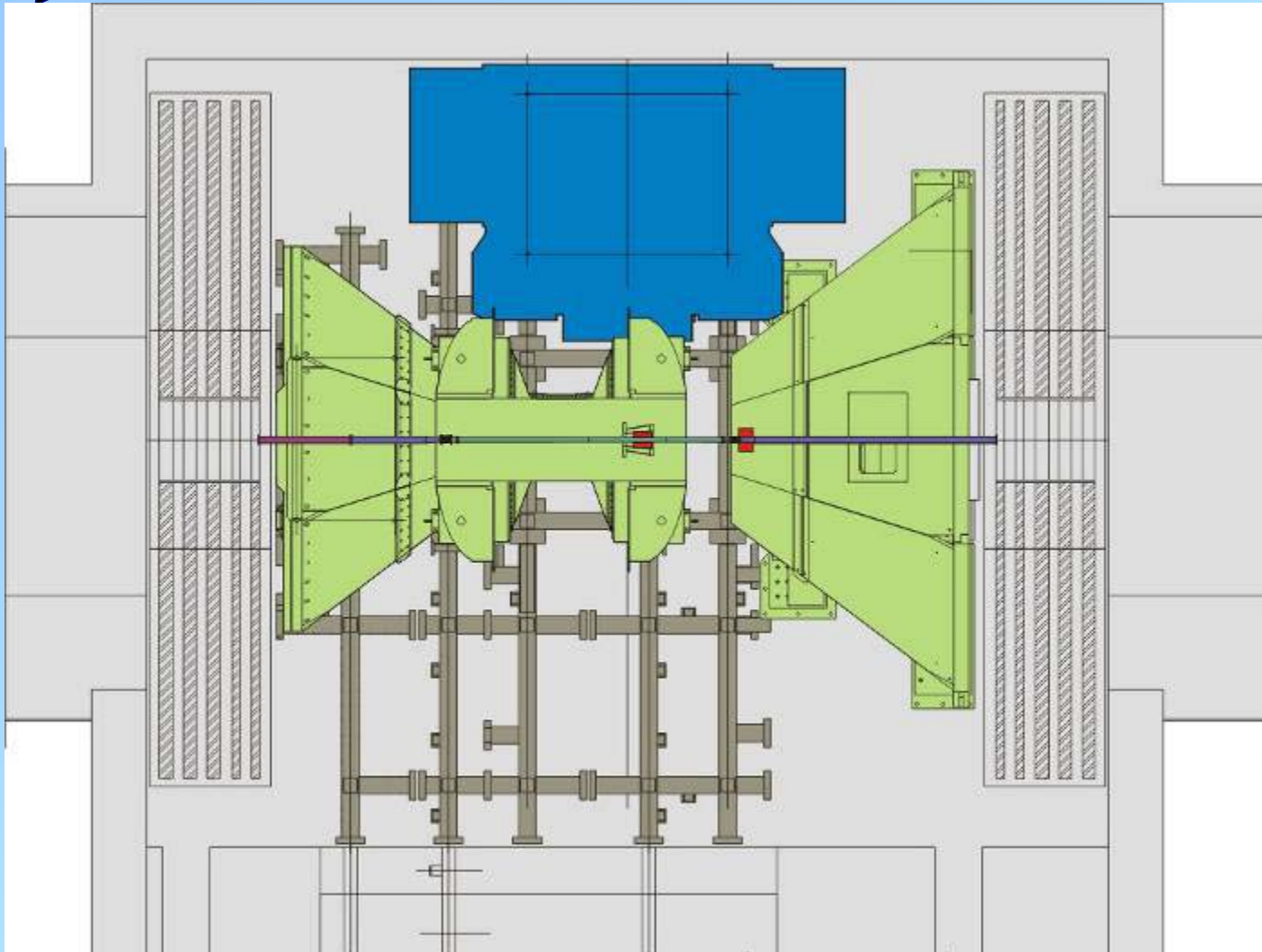
S. Boose
6/14/2011

IR is currently in this (Run) configuration. (MuID collars not shown)

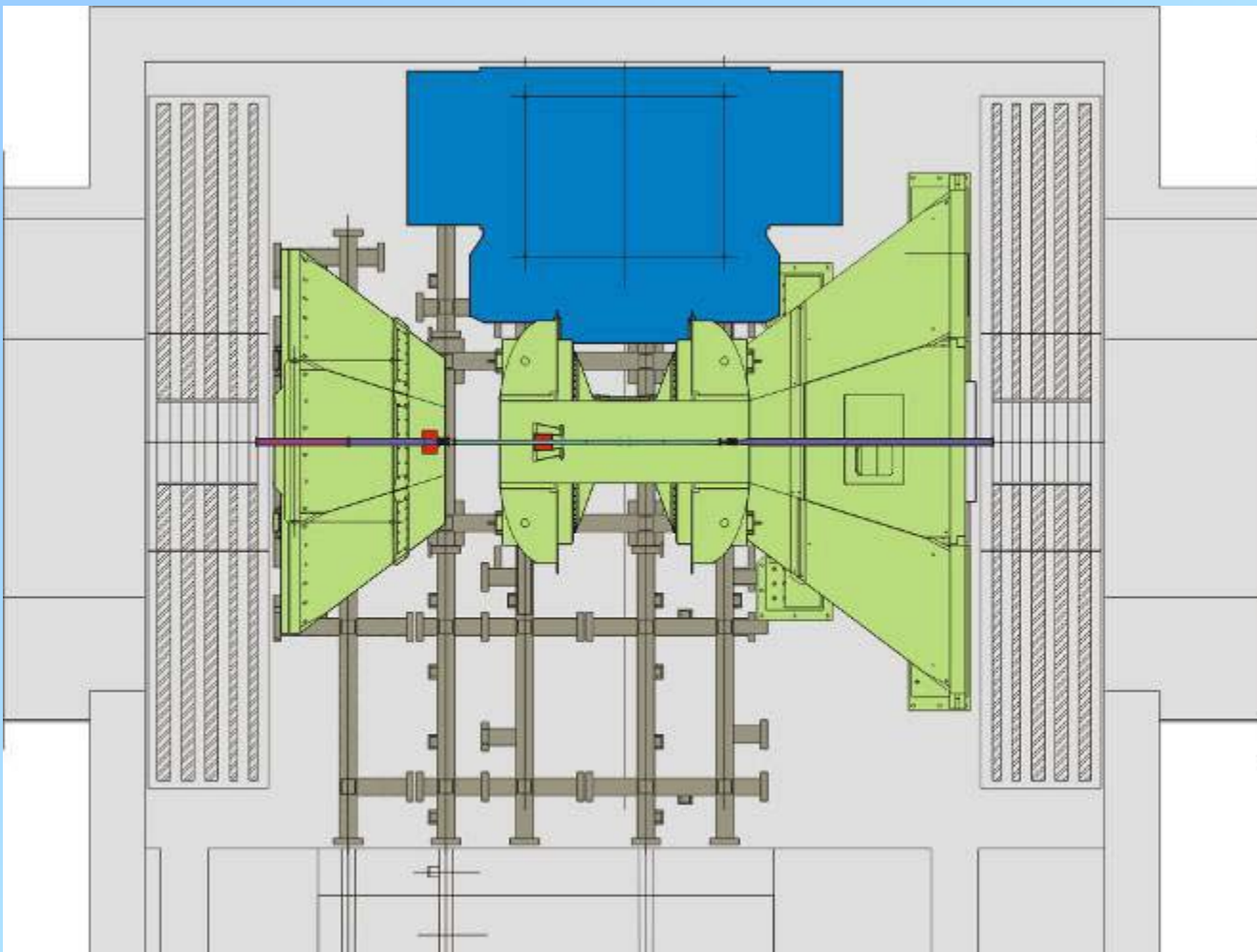
TECHNICAL SUPPORT NO. 1



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After MuID collars are removed and EC is moved to AH, MMS is moved south. CM is then moved south to gain access to Station 1 North. IR remains in this configuration until MuTr station 1 north work is completed and RPC1 north has been installed.



CM is then moved north to gain access to station 1 south. After RPC1 south has been installed and EC has been returned to IR MMS will be moved north and the IR is restored to Run configuration.

PHENIX Procedure Review Current Status:

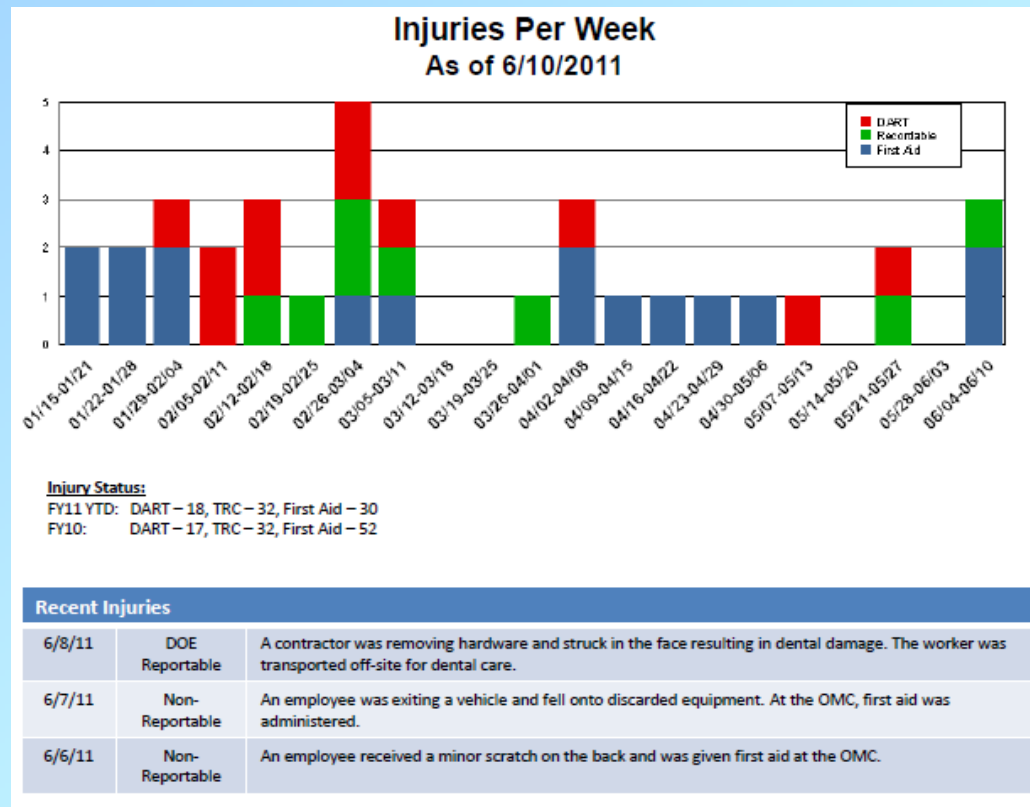
147 Procedures Identified

- 87 Made Inactive (not currently in use, will require revision to re- activate if and when necessary, available for reference purposes)
- 9 CAD procedures relevant to PHENIX, all are up to date and available on the CAD web site
- 43 PHENIX approved procedures.
all are current and up-to-date
- 9 Proposed/Draft Procedures (never previously formalized) (3 are ready for review) These will be addressed during next few months.

Web retrieval of latest procedures now available from PHENIX Internal:

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_procedures.htm

1. CAD ESRC reviews for PHENIX Shutdown (June 21??)
2. Summer students now on site. More pedestrians and motorcycles so be careful driving.
3. PHENIX dress code applies during summer: long pants (no shorts), shoes which fully cover the foot (no sandals)
4. Be aware of grassy areas (chiggers and ticks).



6/15/2011

Where To Find PHENIX Engineering Info

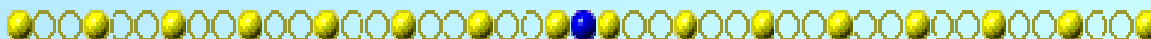
Official end of run scheduled for June 29

Less than 2 weeks away!



Links for the weekly planning meeting slides, archives of past meeting slides, long term planning, pictures, videos and other technical info can be found on the PHENIX Engineering web site:

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm



6/15/2011